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EXPLOSION- OR FLAME-PROOF MULTISECTION CAM CONTROLLER

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EXPLOSION- OR FLAME-PROOF MULTISECTION CAM CONTROLLER

[Explosions—oder schlagwettergeschützter Paketnockenschalter]

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Claims

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1. Explosion- or frame-proof multisection cam controller with mechanical or electronic switching elements lying in at least one plane and situated in at least one housing element, with an escapement on one end of the switch and a cover on the other end, with a selector shaft situated in a central recess running from the escapement to the cover and protruding above it, which operates the individual switching elements via cam disks, and with connection terminals, characterized by the fact that the cup-like housing element (10,12) has a circular bottom elevation (35,44) in known fashion to receive the electronic components (16) in the middle region, in which a recess (31) is formed on the outside surface of the bottom, into which a ring (28) is inserted and secured, which carries the devices (30,33) to influence the electronic components arranged in the housing element, and that between the ring and the bottom of the recess (31), a cover plate (38) connected to the selector shaft and rotatable is arranged, which is

* [Numbers in the right margin indicate pagination of the foreign text.]

formed so that during rotation of the selector shaft, it is connectable to a tab (70,72) between the devices and the element and vice versa.

2. Multisection cam controller according to Claim 1, characterized by the fact that the ring has two diametrically opposite box-like spaces (50,52), into which a cube-like permanent magnet (30,33) is inserted, said permanent magnets influencing the electronic components. /2

3. Switch according to Claim 2, characterized by the fact that the cover plate is formed from a sheet and has two opposite segment-like cutouts (66,68), whose radial dimensions correspond to the dimensions of the permanent magnets.

The invention concerns a multisection cam controller according to the preamble of Claim 1. /3

There are electrical multisection cam controllers in a pressure-tight encapsulated version that have not only mechanical switching elements, but also electronic switching elements. This type of multisection cam controller is presented in GB-PS 1 579 561, in which Hall generators are cast into the housing element on both sides of a guide pin running through the interior of the element, and permanent magnets are arranged on the guide pin itself, which, depending on the position of the guide pin, influenced by the cam disks, influence or do not influence the Hall generators.

The task of the invention is to provide a solution that is improved relative to the known solution.

This task is solved according to the invention in that the housing element, designed cup-like in known fashion, has a circular bottom elevation to accommodate the electronic components in the middle region surrounding the central hole, in which a recess is formed, into which a ring is inserted and secured, which carries devices to influence the electronic components arranged in the housing element, and that between the ring and the bottom of the recess, a cover plate connected to the selector shaft and rotatable with it is arranged, which is formed so that during rotation of the selector shaft, it can be moved with a lug between the devices and the element and vice versa. /4

Another embodiment of the invention can be deduced from the additional claims.

The invention, as well as additional advantages and improvements of it, is further explained and described with reference to the drawings in which a practical example of the invention is shown.

In the drawings:

Figure 1 shows a section through a multisection cam controller with electronic components,

Figure 2 shows a section through a housing element to accommodate the electronic components, without them, and with the ring and cover plate inserted in it,

Figure 3 shows a view of a cover plate and

Figure 4 shows a view of the ring with the permanent magnets inserted in the arrow direction F.

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According to Figure 1, the multisection cam controller according to the invention is formed from housing elements 10 and 12, said housing elements, as is apparent from Figure 2, having a space 14 open on one side, into which electronic components 16 are cast on a circuit board 18 by means of casting resin 20. A Hall generator 22 is also fastened to the circuit board 18. A connection lug 24 protrudes from the casting resin, which is guided by means of connection pieces 26 to a connection lug (not shown) that corresponds to the Patent Application P ... (our Mp. No. 570/82) filed in parallel. To operate the Hall generator, a ring 28 is provided, carrying two permanent magnets 30. The ring 28 is inserted into a recess 31 on the bottom 32 of housing element 14 [sic] and fixed in it. The bottom 34 of the recess carries an additional gradation 36, into which a cover plate 38 is inserted. The ring 28 is designed cup-like and has a through-hole 40 in the center, through which a selector shaft 42 (see Figure 1) can pass. This hole 40 is flush with a recess 41 in housing element 10, 12, which is enclosed by a tubular collar 44, said collar forming the space 14 to accommodate the electronic components with the side walls 46. The Hall generator 22 is mounted on the annular surface 35 on both sides of the center axis formed by the recess 31 in the interior of space 14.

As is apparent from Figure 2, the ring 28 is also designed cup-like and has diametrically opposite receptacles 50 and 52, into which the permanent magnets 30 and 33 are inserted.

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The cover disk 38 has a central opening 60, formed by two squares offset by 45°, so that the recess 60 appears star-like. The cover plate 38 has cutouts 66 and 68, so that lugs 70 and 72 are formed by this. The cutouts 66 and 68 are diametrically opposite, like lugs 70 and 72.

In the installed state, when the cover plate 38 and the ring 28 mounted on it are inserted into the recess, as is apparent from Figure 1, the Hall generator or Hall generators 22 are switched by the fact that, by rotation of the cover plate 38, either the cutouts 66 and 68 lie either between the permanent magnets 30 and 33 and the Hall generators 22 or lugs 70 and 72, a configuration in which, when the lugs 70 and 72 lie between the permanent magnets and the Hall generator, the effect of the magnetic field on the Hall generator or Hall generators is prevented.

In order for the rings to be secured within the recess, coil springs 80 and 82 are provided, in which the coil springs 80 act on the ring of plane 12 under the influence of plane 10 and the coil spring 82 acts on the ring of plane 10 via cover 11. The connection between cover 11, on which, as shown in the parallel filed application (... Mp. No. 570/82), the connection terminals

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are mounted with the base 13, in which an escapement is arranged to operate the selector shaft 42, and the individual planes lying in between, occurs by means of hollow rivet screw connections 84.

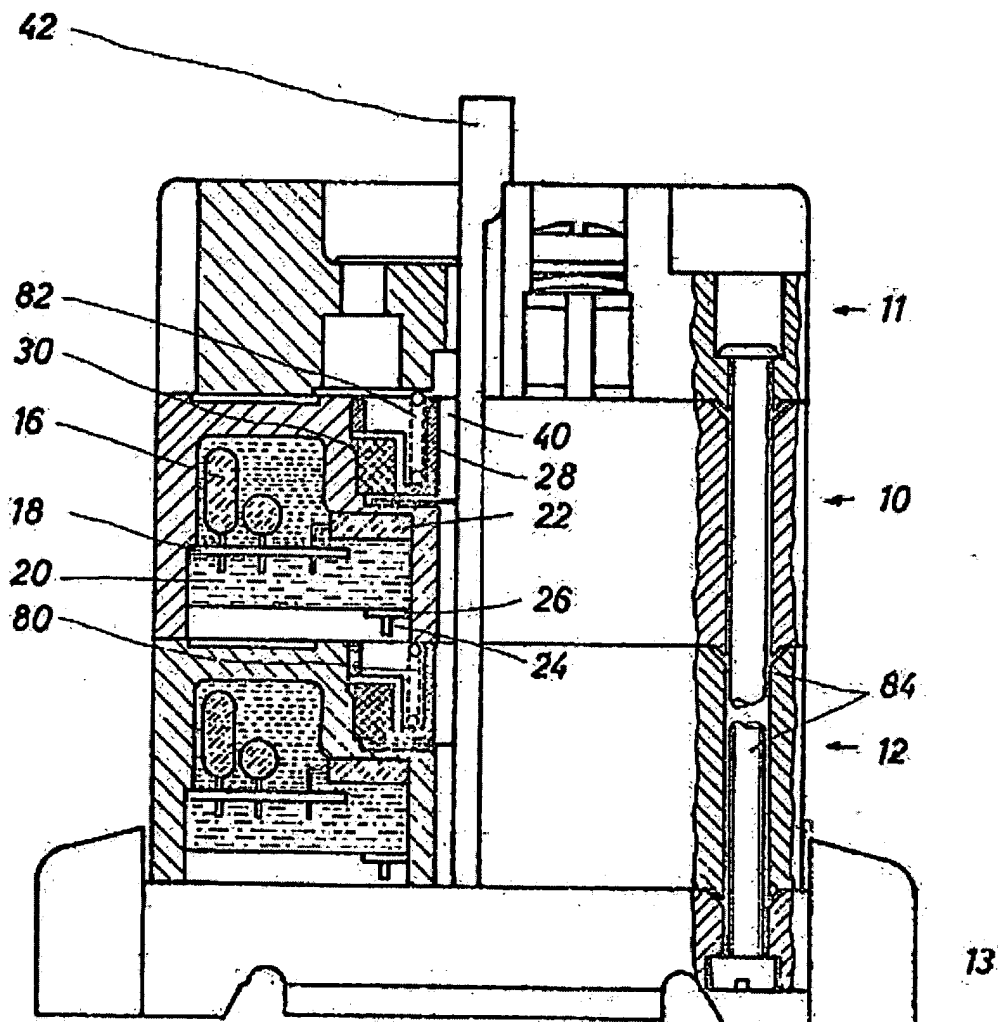


Fig.1

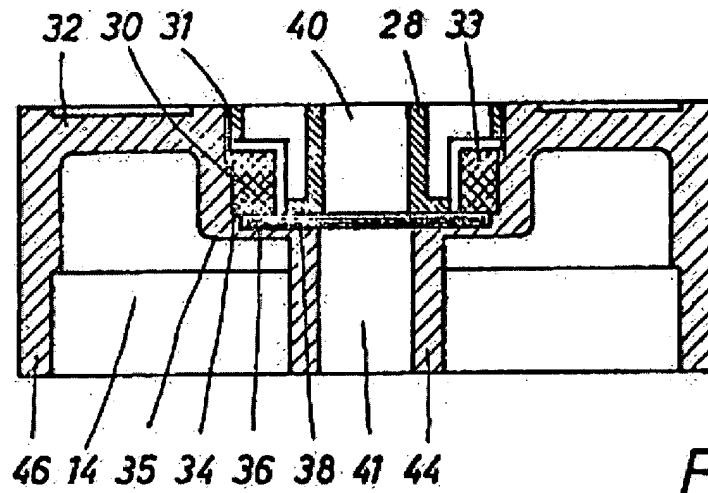


Fig. 2

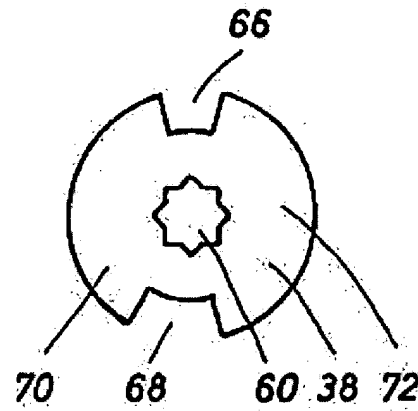


Fig. 3

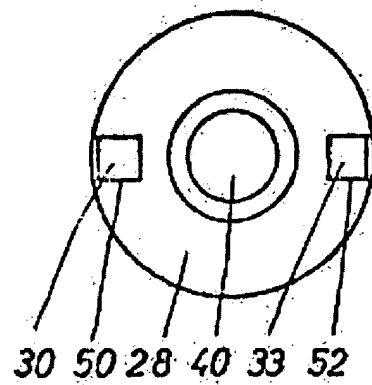


Fig. 4